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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/073,907	02/14/2002	Shigeru Katayama	Q68278	4762

7590 07/06/2004
SUGHRUE, MION, ZINN, MACPEAK & SEAS, PLLC
2100 Pennsylvania Avenue, N.W.
Washington, DC 20037

EXAMINER

ZACHARIA, RAMSEY E

ART UNIT	PAPER NUMBER
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1773

DATE MAILED: 07/06/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/073,907	KATAYAMA ET AL.	
	Examiner	Art Unit	
	Ramsey Zacharia	1773	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 April 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 and 3-6 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1 and 3-6 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 14 February 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claim Rejections - 35 USC § 102

2. Claims 1, 4, and 5 are rejected under 35 U.S.C. 102(e) as being anticipated by Koide (U.S. Patent 6,529,228).

Koide teaches an inkjet recording head that comprises a resinous material that is acted on by a laser (column 2, line 66-column 3, line 9). In Embodiment 1, a laser having a pulse duration of 150 femtoseconds and an energy of 15 μJ /pulse was used (column 8, lines 10-19). The laser operated at 1000 Hz (column 9, lines 1-13), i.e. 1000 pulses per second. At 15 μJ /pulse, this is equivalent to an irradiation energy of $15000 \mu\text{J/s} = 15000 \mu\text{W} = 15 \text{ mW}$. The laser is used to form ports in the resinous material that have a nearly circular cross-section in one direction and a nearly rectangular cross-section in another direction (Figure 4A and 4B).

Claim Rejections - 35 USC § 102 / 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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4. Claims 1 and 3-6 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Kazuyoshi (JP 2000-056112).

Kazuyoshi teaches an optical element comprising optical glass that has been modified with a laser having a pulse duration of 1 nanosecond to 1 femtosecond (claim 1). Optical glass is transparent and therefore should have a transmittance in the visible wavelength region of 10% or higher. The optical glass may be optical plastic (claim 5). According to Figure 1, the modified area is in an inner portion of the element, extends in a directed perpendicular to the laser, and has a nearly rectangular section perpendicular to the longitudinal direction of the element. In the embodiment of Example 1, Kazuyoshi uses a laser having a pulse of 0.1 picoseconds (1×10^{-13} s) and an energy of 1 mJ (paragraph 0013).

The irradiation energy of the laser is a product-by-process type of limitation. However, the resulting article appears to be the same as that of the instant invention, a plastic part with an interior section modified by laser light having a pulse duration of 10^{-12} s or less. When the prior art discloses a product which reasonably appears to be either identical with or only slightly different than a product claim having product-by-process type limitations, the burden is on the applicant to present evidence from which the examiner could reasonably conclude that the claimed product differs in kind from those of the prior art. *In re Brown*, 459 F. 2d 531, 173 USPQ 685 (CCPA 1972); *In re Fessman*, 489 F. 2d 742, 180 USPQ 324 (CCPA 1974). This burden is NOT discharged solely because the product was derived from a process not known to the prior art. *In re Fessman*, 489 F. 2d 742, 180 USPQ 324 (CCPA 1974). Furthermore, the determination of patentability for a product-by-process claim is based on the product itself and not on the method of production. If the product in the product-by-process claim is the same or

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obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process. *In re Thorpe*, 227 USPQ 964, 966 (Fed. Cir. 1985) and MPEP § 2113.

The energy taught by Kazuyoshi is either the product (energy per pulse) x (frequency), which results in an energy of 1 mW, a value within the range of 500 mW or lower. Alternatively the energy recited is the energy of an individual pulse with no frequency disclosed. In the first case, the energy of 1 mW reads on the limitation of claim 1. In the event that the power of the laser used by Kazuyoshi does not inherently possess an irradiation energy of 500 mW or lower, it would be obvious to one of ordinary skill in the art to optimize the energy of the laser because the energy is a variable that affects the finished properties of the resulting optical device. That is, the power of the laser is a results effective variable and it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2nd 272, 205 USPQ 215 (CCPA 1980).

Response to Arguments

5. Applicant's arguments filed 14 April 2004 have been fully considered but they are not persuasive.

Regarding the rejection as anticipated by Kazuyoshi, the applicants argue that Kazuyoshi does not teach an irradiation energy and the calculations performed by the examiner are incorrect.

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The examiner agrees that the calculations performed in the Office action mailed 14 January 2004 do not accurately predict the irradiation energy of the laser. Therefore, a new analysis is presented above.

The applicants further assert that the invention as a whole includes not only the subject matter which is literally recited in the claims but also to those properties of the subject matter which are inherent in the subject matter and are disclosed in the specification, particularly the unique characteristics recited on page 17, line 22-page20, line 9 of the specification.

With respect to this argument, the examiner notes that the article of Kazuyoshi is treated such that it has an inner part that exhibits a different index of refraction from the untreated parts of the article. On page 20, line 4 of the instant specification, the refractive index is explicitly cited as an example of a property modified by the irradiation with a laser light.

Regarding the rejection as anticipated by Koide, the applicants argue that the instant invention does not utilize a specific pattern, such as a mask, but is directed to embodiments wherein an induced structure having a nearly circular or rectangular cross-section is formed without utilizing a mask.

This is not persuasive because the invention as claimed is not limited to structures having a nearly circular or rectangular cross-section but is open to structures having any shape. Moreover, the use of a mask in forming the article of Koide is the process by which the product is made. The instant claims are directed to a product and the determination of patentability is based on the product itself and not on its method of production.

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Conclusion

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ramsey Zacharia whose telephone number is (571) 272-1518.

The examiner can normally be reached on Monday through Friday from 9 to 5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paul Thibodeau, can be reached on (571) 272-1516. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Ramsey Zacharia
Primary Examiner
Tech Center 1700